

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions of claims in the application.

Listing of Claims:

1. (Previously presented): A method of heating a motor vehicle cabin by means of a circuit for circulating a cooling fluid for cooling an engine, comprising:

- circulating a cooling fluid in the circuit,

wherein the circuit comprises a pump, an air heater unit, and a heat exchanger disposed in an exhaust system that is also provided with a depollution assembly,

wherein the depollution assembly comprises a catalyst and a particle filter,

wherein the heat exchanger is placed in said exhaust system downstream from the depollution assembly in the exhaust gas flow direction, and the exhaust system comprises a bypass duct in parallel with the heat exchanger, and

- directing the exhaust gas in the exhaust system and downstream from the depollution assembly towards at least one of (i) the heat exchanger and (ii) the bypass duct, as a function of engine operating conditions, of the outside temperature, of the heating temperature requested in the cabin, and of the temperature of the engine cooling fluid.

2. (Previously presented): A method according to claim 1, wherein, after the main injection of fuel into the cylinders of the engine, and during the expansion stage of the cycle therein, an additional quantity of fuel is injected into at least some of said cylinders in order to

give rise to additional combustion of fuel and increase the temperature of the gas flowing along the exhaust system and through the heat exchanger.

3. (Previously presented): A method according to claim 1, wherein the engine operating conditions that are taken into account are the torque and/or the speed of rotation of said engine.

4. (Previously presented): A method according to claim 1, wherein the exhaust gas is directed towards the heat exchanger without additional injection of fuel for a determined maximum speed of rotation lying in the range 2500 rpm to 3500 rpm, and/or for a torque less than a determined maximum torque lying in the range 100 Nm to 200 Nm.

5. (Currently amended): A method according to claim 1, wherein the exhaust gas is directed towards the heat exchanger without any additional injection of fuel while the cooling fluid is not at a temperature below a temperature lying in the range 70°C to 85°C ~~and preferably not less than 80°C~~, and while outside temperature is not below a temperature lying in the range 5°C to 15°C, ~~and preferably not below 10°C~~.

6. (Previously presented): A method according to claim 1, wherein the exhaust gas is directed towards the heat exchanger while simultaneously injecting additional fuel for a determined maximum speed of rotation lying in the range 2500 rpm to 3500 rpm, and/or for a

determined torque lying between a maximum torque and a minimum torque, which are functions of the speed of rotation of the engine.

7. (Previously presented): A method according to claim 1, wherein the exhaust gas is directed towards the heat exchanger while simultaneously injecting additional fuel while the cooling fluid has a temperature lying between a minimum temperature lying in the range -5°C to $+5^{\circ}\text{C}$ and a maximum temperature lying in the range 70°C to 85°C , and while outside temperature is less than a temperature lying in the range 5°C to 15°C .

8. (Currently amended): Apparatus for heating a motor vehicle cabin, comprising:
a circuit for circulating a cooling fluid for cooling an engine and including a pump, an air heater unit, and a heat exchanger disposed in an exhaust system provided with a depollution assembly,

wherein the depollution assembly comprises a catalyst and a particle filter,

wherein the heat exchanger is placed in said exhaust system downstream from the depollution assembly in the exhaust gas flow direction, and the exhaust system comprises a bypass duct in parallel with the heat exchanger, and

a flap for directing the exhaust gas towards at least one of (i) the heat exchanger and (ii) the bypass duct, said flap being actuated as a function of engine operating conditions, of the outside temperature, of the heating temperature requested in the cabin, and of the temperature of the engine cooling fluid.

9. (Previously presented): Apparatus according to claim 8, wherein the engine is a direct injection diesel engine.

10. (Previously presented): Apparatus according to claim 9, wherein the engine includes means for injecting an additional quantity of fuel into at least some of the cylinders of said engine after the main injection of fuel therein, and to do so during the expansion stage of the cycle in said cylinders, so as to give rise to additional combustion of fuel and increase the temperature of the gas flowing in the exhaust system and through the heat exchanger.

11. (Previously presented): Apparatus according to claim 8, wherein the flap can be tilted between a first position for closing the bypass duct and a second position for opening the bypass duct, said tilting between said first and second positions taking place in the direction in which the gas flows along the exhaust system.

12. (Previously presented): Apparatus according to claim 8, wherein the flap is disposed downstream from the heat exchanger relative to the gas flow direction in the exhaust system.

13. (Previously presented): A method according to claim 5, wherein the exhaust gas is directed towards the heat exchanger without any additional injection of fuel while the cooling fluid is at a temperature not less than 80°C, and while outside temperature is not below 10°C.

14. (Previously presented): A method according to claim 7, wherein the exhaust gas is directed towards the heat exchanger while simultaneously injecting additional fuel while the cooling fluid has a temperature lying between a minimum temperature of the order of 0°C and a maximum temperature of the order of 80°C, and while outside temperature is less than a temperature of the order of 10°C.